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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/316,518	05/21/1999	KENNETH L. STANWOOD	ENS-002-PAP	7910

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EXAMINER
LY, ANH VU H

ART UNIT	PAPER NUMBER
2667	20

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-51,70,71,73 and 78-96* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *78-87* is/are allowed.

6)☒ Claim(s) *24-51,70,71,73 and 88-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on March 01, 2004 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 24, 26-38, 42-48, 50-51, and 88-91 are rejected under 35 U.S.C. 102(e) as being

anticipated by Papadopoulos et al (US Patent No. 5,594,720).

With respect to claims 24, 26-34, 36, 38, 42-48, 50-51, and 88-91, Papadopoulous et al

discloses (col. 5, lines 11-52 and Fig 4) a format for frame 401. Frame 401 is divided into four

sections. Call management sections are handled by uplink control section 405, which contains

bits for handling requests for uplink information slots, and downlink control section 407, which

contains bits indicating which uplink and downlink information slots are assigned for the uplink

and downlink users to send and receive information. The remainder of frame 401 is divided into

S slots, S=U + D + A, where U slots allocated for uplink information transfer and D slots

allocated for downlink information transfer. The number of slots allocated between uplink

section 410 and downlink section 415 can vary with each frame as indicated by partition 412.

Wherein, the partition 412 between the uplink and downlink slots varies according to demand

(uplink and downlink bandwidth requirements ratio are predicted, set, and allocated using

associated and respective bandwidth utilization parameters). Further, such dynamic bandwidth

allocation is implemented in the cellular communication system, as illustrated in Fig. 1

(periodically enabling uplink transmissions during allocated uplink time slots and downlink

transmissions during allocation downlink time slots).

With respect to claims 35 and 37, Papadopoulous et al discloses in Fig. 7, a diagram of

partially-shared time division duplexing frame format (a frame comprises N time slots); wherein,

a number of slots 715 allocated for downlink transmission (a first number N1 time slots allocated

for downlink transmissions only) and wherein, the remaining slots 710 and 720 allocated for

uplink and downlink transmissions (allocating the remaining N2 time slots for both uplink and

downlink transmissions).

3.   Claims 70-71 and 73 are rejected under 35 U.S.C. 102(e) as being anticipated by Raith et

al (US Patent No. 5,729,531).

With respect to claims 70-71 and 73, Raith et al discloses (see Abstract) a general

allocation method to approximately evenly distribute the mobile stations on the available

channels (initializing the base station with an initial set of bandwidth utilization parameters,

including a first estimate of the uplink and downlink bandwidth requirements of at least one CPE

in a frame). After a mobile station begins active communication on the system, a second

allocation (updating initial set of bandwidth utilization parameters with an actual set of

bandwidth utilization parameters based on the monitoring) is used to change the phase (slots), of

some mobile stations on a channel, which has become heavily loaded (monitoring bandwidth use

by at least one CPE and the base station).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 25, 39-41, 49, and 92-96 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Papadopoulos et al (US Patent No. 5,594,720) in view of Raith et al (US

Patent No. 5,729,531).

With respect to claims 25 and 49, Papadopoulos et al discloses a method of dynamically

allocating time slots within a frame for uplink and downlink transmissions. Papadopoulos et al

does not disclose uplink and downlink bandwidth requirements are initially determined when the

link is installed in the communication system. Raith et al discloses (see Abstract) a method of

evenly distributed bandwidth of the available channels to the mobile stations before the mobile

stations actively communicated in the system. It would have been obvious to one having

ordinary skill in the art at the time the invention was made to include the feature of allocating

bandwidth to the mobile stations before the mobile stations actively communicated in

Papadopoulos et al's system, as suggested by Raith et al, for initial data transmissions.

With respect to claims 39-41 and 92-96, Papadopoulos et al discloses a method of

dynamically allocating time slots within a frame for uplink and downlink transmissions.

Papadopoulos et al does not disclose statistical bandwidth parameters comprise both an initial

and actual set of statistical parameters reflective of the bandwidth requirements of the

communication link. Raith et al discloses (see Abstract) a general allocation (initial set of

statistically parameters reflective of bandwidth requirements) method to approximately evenly

distribute the mobile stations on the available channels. After a mobile station begins active

communication on the system, a second allocation (actual set of statistical parameters reflective

of bandwidth requirements) is used to change the phase (slots), of some mobile stations on a

channel, which has become heavily loaded. It would have been obvious to one having ordinary

skill in the art at the time the invention was made to include the feature of allocating bandwidth

to the mobile stations according to the initial and actual set of statistical parameters in

Papadopoulos et al's system, as suggested by Raith et al, to flexibly accommodate different

transmissions needs.

Allowable Subject Matter

5.   Claims 78-87 are allowed.

Response to Arguments

6.   Applicant's arguments filed March 01, 2004 have been fully considered but they are not

persuasive.

Applicant argues on page 13 that Papadopoulos fails to teach or disclose a forward looking prediction of bandwidth requirements which is then used to set up the uplink/downlink ratio for a frame based on the bandwidth requests and other factors such as interference with adjacent base stations. Examiner respectfully disagrees. First of all, independent claim 24 does not recite that forward looking prediction considered other factors such as interference with adjacent base stations. Besides, Papadopoulos (see Abstract) discloses an apparatus and method for reducing co-channel interference and assigning the requested bandwidth by adjusting the allocated uplink and downlink slots in a frame. Papadopoulos discloses that the frame slots in which the antennas communicate uplink and downlink information are arranged in accordance with a predetermined frame organization (prediction) to reduce mixed co-channel interference. Therefore, Papadopoulos's systems is not reactive to the demands for bandwidth but including other factors such as interference in assigning slots in the frame.

Applicant argues on page 14 that Raith fails to teach or suggest using initially known connection information, for example, quality of service, for adjusting uplink/downlink ratio. Examiner respectfully disagrees. Independent claim 70 does not recite quality of service for adjusting uplink and downlink ratio.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H Ly whose telephone number is 703-306-5675. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 703-305-4378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

avl

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